

## ABSTRACT

Construction of a model using a computer aided design system includes constructing a feature in a three dimensional model based on data input by a user. Following construction of the feature, a part configured to compatibly couple with the feature is automatically identified based on design attributes of the feature. The part can be selected from a parts library that includes data representing parts and their geometric characteristics. The part also may be automatically generated based on a part model in a parts library. The part generation can include querying a database storing the part library to retrieve a part model, and then generating an instance of the part model based on design attributes of the feature so as to ensure coupling compatibility with the feature.